AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for quantitatively determining a width of a soft zone area of a partially hardened metallic workpiece, which has at least one hardened and one unhardened area, ~~by means of~~ with at least one multifrequency eddy current sensor, wherein:

a single workpiece is individually moved relative to the multifrequency eddy current sensor ~~in such a manner~~ so that a spatially limited eddy current field generated by the multifrequency eddy current interacts with the workpiece contactlessly, generates eddy currents therein which~~, in turn,~~ generate a measuring signal in the multifrequency eddy current sensor, in which the spatially limited eddy current field has a greatest extension ~~oriented in~~ along a longitudinal direction ~~to the~~ of a surface of the workpiece, ~~which~~ the greatest extension ~~is~~ of the eddy current field being greater than ~~the~~ a maximum extension of the soft zone area ~~in~~ along the longitudinal direction of the surface of the workpiece~~,~~; and

measuring a number n of workpieces for calibrating purposes ~~is measured~~, ~~with~~ using the measuring signals of the n workpieces ~~being utilized~~ to plot a calibration curve using a predetermined standard size of ~~the~~ a width of the soft zone~~,~~ with a desired size of an extension oriented in a longitudinal direction of the soft zone area of the n workpieces, and assigning an absolute soft zone width ~~is assigned~~ to the measuring signals based on the calibration and which are obtained from each individual workpiece.

2. (Currently Amended) The method according to claim 1, wherein:

the workpieces are ~~designed~~ cylindrical and are moved relative to the eddy current sensor along ~~their~~ a cylindrical axis thereof.

3. (Currently Amended) The method according to claim 1, wherein:

the workpieces are planet wheel bolts which have a cylindrical geometry and two soft areas ~~lying~~ located on ~~the front~~ ends thereof separated by a hardened middle area, with the middle area having a greater axial extension than the soft zone areas, which each ~~usually~~ have an axial extension, ~~with~~and a soft zone width, ~~of~~ from 1.5 mm to 2.5 mm.

4. (Currently Amended) The method according to , claim 1 wherein:

the multifrequency eddy current sensor is operated ~~in such a manner~~ so that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of measuring signals is generated and plotted as an amplitude locus curve; and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy current sensor, in which defined position a measuring signal is recorded which is used to determine ~~the~~ a width of the soft zone.

5. (Currently Amended) The method according to claim 4, wherein:

the defined position is selected ~~in such a manner~~ so that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in longitudinal extension to ~~the~~ a direction of movement.

6. (Previously Presented) The method according to claim 4, wherein:

the defined position is determined solely by evaluation of the amplitude locus curve.

7. (Currently Amended) The method according to claim 1, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

8. (Currently Amended) The method according to claim 1, wherein:

the workpieces are planet wheel bolts which have a cylindrical geometry and two soft areas ~~lying~~ located on ~~the front~~ ends thereof separated by a hardened middle area, with the middle area having a greater axial extension than the soft zone areas, which each ~~usually~~ have an axial extension~~, with~~ and a soft zone width~~, of~~ from 1.5 mm to 2.5 mm.

9. (Currently Amended) The method according to claim 2 wherein:

the multifrequency eddy current sensor is operated ~~in such a manner~~ so that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of the measuring signals ~~is~~ are generated and plotted as an amplitude locus curve; and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy current sensor, in which defined position a measuring signal is recorded which is used to determine ~~the~~ a width of the soft zone.

10. (Currently Amended) The method according to claim 3 wherein:

the multifrequency eddy current sensor is operated ~~in such a manner~~ so that during measuring of a workpiece, which moves continuously relative to the multifrequency sensor with a constant velocity, a multiplicity of the measuring signals ~~is~~ are generated and plotted as an amplitude locus curve; and

from at least one part of the amplitude locus curve a measuring constellation is selected in which the workpiece has a defined position to the multifrequency eddy current sensor, in which defined position a measuring signal is recorded which is used to determine ~~the~~ a width of the soft zone.

11. (Currently Amended) The method according to claim 9, wherein:

the defined position is selected ~~in such a manner~~ so that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in a longitudinal extension relative to ~~the~~ a longitudinal direction of movement.

12. (Currently Amended) The method according to claim 10, wherein:

the defined position is selected ~~in such a manner~~ so that the eddy current field of the multifrequency eddy current sensor completely contains the soft zone area at least in a longitudinal extension relative to ~~the~~ a longitudinal direction of movement.

13. (Previously Presented) The method according to claim 11, wherein:

the defined position is determined solely by evaluation of the amplitude locus curve.

14. (Previously Presented) The method according to claim 12, wherein:

the defined position is determined solely by evaluation of the amplitude locus curve.

15. (Currently Amended) The method according to claim 2, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

16. (Currently Amended) The method according to claim 3, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

17. (Currently Amended) The method according to claim 4, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

18. (Currently Amended) The method according to claim 5, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

19. (Currently Amended) The method according to claim 6, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

20. (Currently Amended) The method according to claim 8, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

21. (Currently Amended) The method according to claim 9, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

22. (Currently Amended) The method according to claim 10, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

23. (Currently Amended) The method according to claim 11, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

24. (Currently Amended) The method according to claim 12, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

25. (Currently Amended) The method according to claim 13, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.

26. (Currently Amended) The method according to claim 14, wherein:

a multifrequency eddy current sensor ~~operatable~~ with four different testing frequencies is used as the multifrequency eddy current sensor.